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A PATH TO MANAGEMENT DEVELOPMENT AND TO
THE MEASUREMENT OF ITS GROWTH: FINAL REPORT

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March, 1964

A PATH TO MANAGEMENT DEVELOPMENT AND TO
THE MEASUREMENT OF ITS GROWTH: FINAL REPORT

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Personnel Research Staff
Office of Personnel
United States Department of Agriculture
Washington, D. C.

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March, 1964

ACKNOWLEDGMENT

The authors wish to thank all those participants and supervisors who provided the data for this research project by taking the time and the trouble to fill out the questionnaires.

SUMMARY AND HIGHLIGHTS

This is the final report of an action research project aimed at developing a prototype method for increasing the benefits derived from training courses and for evaluating the contributions of such courses to management development. An earlier report¹ analyzed information obtained just before and immediately after training from participants in the Kepner-Tregoe course in "Management Problem Analysis and Decision Making," and from their supervisors. The present report covers the results of a follow-up conducted eight to ten months later.

The Concept

Effective training means a change not only in the participant, but also in his supervisor, in higher management, and in the total work situation. If a course is to be effective, management must be ready for the "changed man." Sometimes an employee is unable to use his newly acquired knowledges and skills because these call for a change in established ways of doing things--changes that his supervisors and associates may be unable or unwilling to accept.

Thus, any particular course is but a phase of a continuing process, one step in a sequence of individual, group, and organizational changes. Training evaluation, therefore, cannot stop with the trainee. It must also take into account the role played by the supervisors and managers, as well as the interaction among all parties involved in planning for training and for its application.

The Data

Two questionnaires were constructed -- one for participants and the other for supervisors (Appendix A). On August 15, 1963, these questionnaires were mailed to the 54 participants described in the earlier report, and to their supervisors. This follow-up covered a period ranging from eight to ten months after completion of the course.

Thirty-seven participants returned completed questionnaires in time to be included in the analysis. Twenty-five supervisors reported on 36 participants; not always on the same participants who reported on themselves. Information from both the participant and his supervisor was obtained in 29 cases.

¹ Harmon, F.L. A Path to Management Development and to the Measurement of its Growth (PRS 63-2), U.S. Department of Agriculture, February 1963.

The questions dealt solely with the effectiveness of the training in producing observable changes in the job performance of the participants. Neither participants nor their supervisors were asked how they liked the course, what they thought of the instructor, how good the presentations were, etc. Our object was to find out what the participants actually did with the training after they had received it, how they used it in their work, and whether the amount and kinds of communication and follow-up that took place between participant and supervisor made a difference in the participant's application of his newly acquired learning.

The findings pose a number of questions for management. Judgments must be made as to whether these situations are acceptable:

43% of the participants were able to specify in detail how they had applied the training in their work;

27% were unable to indicate that they had used the training at all;

In 33% of the cases there was no discussion of the training between participants and their supervisors during the eight to ten months following completion of the course;

In 44% of the cases no definite follow-up efforts were reported by the supervisors;

In 56% of the cases supervisors were unable to specify what, if any, use the participants had made of the training;

Feedback on the first phase of this project reached 36% of the supervisors and 38% of the participants.

The questions raised by findings like these become more insistent in the light of other data presented in this report. Thus, the evidence indicates that:

Asking about follow-up plans increases the likelihood that follow-up will actually occur;

Feedback promotes follow-up;


Discussion and follow-up efforts by the supervisor increase the chances that the participant will find applications of the training in his work.

If then, the training situation seems unsatisfactory at present, there appear to be ways of improving it.

Recommendation

If the procedure described in this report and its predecessor is used as a "one-shot" affair, then, it has little lasting value. To realize the potential benefits, it is necessary that the procedure be carried out methodically and on a continuing basis. This means, among other things, insisting upon complete return of questionnaires from both participants and their supervisors. If management treats the evaluation process casually, others will do so too. The result can be an altogether unwarranted complacency regarding the effectiveness of the entire training and management development program.

It is recommended that the method described here, or appropriate variants of it, be applied to all management courses on a continuing basis.

A handwritten signature in dark ink, appearing to read 'A. S. Glickman', with a long horizontal flourish extending to the right.

Albert S. Glickman
Chief
Personnel Research Staff

TABLE OF CONTENTS

	Page
Summary and Highlights	iii
Introduction	1
What We Looked For	2
What We Did	3
What We Found	4
A. Follow-Up By Supervisors	5
B. Application Of The Training	10
C. Feedback	19
D. Other Comments	22
Discussion	23
Recommendation	25
Appendix A, Follow-up Questionnaires	27
Appendix B, The Scoring System	33
Appendix C, Representativeness of Sample	39

LIST OF EXHIBITS

	Page
1. Supervisor-Participant Discussions Before and After the Course	6
2. Responses by Supervisors of 21 participants to Questions Post-2	7
3. Distributions of Participants' Responses to Questions Post-2a and Follow-up 1	10
4. Responses of Participants to Follow-up Question 1 and by their Supervisors to Follow-up Question 3	15
5. Distribution by Agency of Participants Who Returned Questionnaires	40
6. Distribution by GS Level of Participants Who Returned Questionnaires	40
7. Actual (A) and Theoretically Proportional (P) Distributions of Responses to Question Pre-1	41
8. Actual (A) and Theoretically Proportional (P) Distributions of Responses to Question Pre-2	42
9. Actual (A) and Theoretically Proportional (P) Distributions of Responses to Question Pre-4	43
10. Actual (A) and Theoretically Proportional (P) Distributions of Responses to Question Post-2a	43
11. Actual (A) and Theoretically Proportional (P) Distributions of Responses to Question Post-4.....	44

A PATH TO MANAGEMENT DEVELOPMENT AND TO THE MEASUREMENT
OF ITS GROWTH: FINAL REPORT

I. INTRODUCTION

This is the second and final report on an action research project aimed at developing a prototype method for increasing the benefits derived from training courses and for evaluating the contributions of such courses to management development. An earlier report analyzed information obtained just before and immediately after training from participants in the Kepner-Tregoe course in Management Problem Analysis and Decision Making, and from their supervisors.¹ The present report covers the results of a follow-up conducted eight to ten months later.

It was emphasized in the first report that effective training means change not only in the participant, but also in his supervisor, in higher management, and in the total work situation. If a training course is to be effective, management must be ready for the "changed man." Sometimes an employee is unable to use his newly acquired knowledge and skills because these call for changes in established ways of doing things--changes that his superiors and associates may be unable or unwilling to accept. When this happens, the training effort is wasted, if not actually detrimental to the participant and to the efficient functioning of the organization.

Within this broad concept, any particular course is but a phase of a continuing training process, one step in a sequence of individual, group, and organizational changes. Training evaluation, therefore, cannot stop with the trainee. It must also take into account the role played by supervisors and managers, as well as the interaction among all parties involved in planning for training and for its application.

¹Harmon, F. L. "A Path to Management Development and to the Measurement of Its Growth," U. S. Department of Agriculture, Office of Personnel, Personnel Research Series 63-2, 1963.

II. WHAT WE LOOKED FOR

To summarize further from the first report, five general questions define the evaluation process, as follows:

1. What specific things is the trainee expected to do or to do differently as a result of this training experience?
2. How did the individual act before he was trained? How did he act after training?
3. Are the long-term effects the same as the more immediate changes in behavior?
4. What, precisely, do we wish to evaluate?
5. What use is to be made of the evaluation process?

Besides these general questions, our approach was determined by what we considered to be the specific features of a sound training program. Thus:

1. Both participants and supervisors should display some advance knowledge of the specific objectives of the training.
2. They should evidence knowledge of the employee's individual training needs.
3. They should clearly perceive the relation of this particular training to the participant's career development.
4. Training should be integrated with operations--supervisors and participants should be able to indicate definite ways in which the employee is expected to use the training in his work.
5. Communication between supervisor and employee should indicate that both are involved in planning the training effort.
6. Adequate feedback should be provided to the supervisor, as well as to agency and departmental training staffs.

III. WHAT WE DID

Data Collection

Two questionnaires were constructed--one for participants and the other for supervisors (Appendix A). On August 15, 1963, the Employee Development Division mailed these questionnaires to the 54 participants described in the earlier report, and to their supervisors. Since the Kepner-Tregoe sessions attended by these participants were held between October 15 and December 14, 1962, this follow-up covered a period ranging from eight to ten months after completion of the course.

Thirty-seven participants, or approximately 69% returned completed questionnaires in time to be included in the analysis. Twenty-five supervisors reported on 36 participants, though not always on the same participants who reported on themselves. Information from both the participant and his supervisor was obtained in 29 cases or 54% of the original group.²

Data Analysis

The questionnaire data were scored in the same way as in the first report. The responses to each question were content-analyzed, then sorted into categories according to the quality level of the content. No more than three categories were used in any case. A value of 2 was always given to the "best" or "preferred" answer, usually involving a report of specific operational gains or changes attributed to the training. Zero signified no report of change or benefit. One was in between. "Yes-No" questions were scored 1 or 0. Details and examples of the scoring of each question are given in Appendix B.

Since not all questionnaires were returned, it is necessary to inquire whether those who did respond constitute a representative sample of the original group. A statistical examination of the data supports the assumption of representativeness. (Appendix C contains the detailed analyses.)

²Continued pressure eventually elicited returns from 8 more participants and 6 more supervisors who reported on 7 participants. None of these returns could be included in the data of this report.

IV. WHAT WE FOUND

This method of evaluation was designed to answer certain questions about the effectiveness of the training effort. The research findings will be presented in terms of these questions according to the following plan:

1. The question asked of the data;
2. Relevant questions asked of participants and supervisors;
3. Analysis of questionnaire responses;
4. Answer provided by the data to the original question;
5. Comments.

Both questionnaires contained five main items including "other comments." These items covered four areas of inquiry:

- A. Follow-up by supervisors;
- B. Applications of the training;
- C. Feedback
- D. Other comments.

The results will be presented in this order.

A. FOLLOW-UP BY SUPERVISORS

Question A.1: How much and what kind of supervisor-participant communication occurred after training?

The supervisors' Follow-up Question 1 asked: HAS THIS EMPLOYEE DISCUSSED THE KEPNER-TREGOE CONCEPTS AND METHODS WITH YOU DURING THE PAST SIX MONTHS OR SO?

The supervisors reported on 36 participants.

67% of the participants had discussed the training with their supervisors.

33% had not done so.

Corresponding figures for a similar question asked before training were 55% and 45%. The difference between these "before" and "after" percentages is not statistically significant.

Follow-up Question 2 asked: a. HAVE YOU BEEN ABLE TO FOLLOW UP ON HIS USE OF THE KEPNER-TREGOE TRAINING? b. IF YES, IN WHAT SPECIFIC WAYS?

The distribution of supervisors' responses was:

Level 2	25.0%
Level 1	30.5%
Level 0	44.5%

When Level 2 and Level 1 responses are combined, supervisors appear to have made at least some effort to follow-up on participants slightly more than half of the time. Nearly half of the time, however, nothing along this line has been done.

The question exposed to management judgment by these findings is: "Is the extent of supervisory follow-up as great as it ought to be?"

Question A.2: How consistent were supervisors with respect to follow-up discussions?

There were 26 participants whose supervisors answered both the pre-training and the follow-up questions about discussions of the course. The distribution of their responses to the two questions is shown in Exhibit 1.

Exhibit 1

Supervisor-Participant Discussions Before
and After the Course

	Response		N
	Before	Follow-up	
Yes	Yes	Yes	10
Yes	Yes	No	4
No	No	Yes	6
No	No	No	<u>6</u> 26

There seems to have been little consistency in the pattern of discussions on the part of individual supervisor-participant pairs. The correlation between the "before" and "after" data of Exhibit 1 is .35, a nonsignificant value.³

³Tetrachoric r was estimated by the cosine formula.

Question A.3: How reliable are expressed intentions about follow-up?

Immediately after the course supervisors were asked: IN WHAT WAYS DO YOU PLAN TO FOLLOW UP ON THIS EMPLOYEE'S USE OF WHAT HE LEARNED IN THE COURSE? (Question Post-2)

Let us see to what extent they were able to carry out their plans. There were 21 participants whose supervisors responded to both Question Post-2 and Follow-up 2. Exhibit 2 shows the distribution of these responses by levels.

Exhibit 2

Responses by Supervisors of 21 Participants
to Questions Post-2 and Follow-up 2

		Follow-up 2 Level			Total
		0	1	2	
Post-2 Level	2	3	5	5	13
	1	5	2		7
	0		1		1
Total		8	8	5	21

The exhibit indicates that for these 21 participants:

(along the diagonal)

in 7 cases, supervisors followed up as specifically as they initially planned to do;

(above the diagonal)

in 5 cases, supervisors did not implement their follow-up plans as specifically as they initially planned to do;

in 8 cases, supervisors did not implement their follow-up plans at all;

(below the diagonal)

in 1 case, a supervisor who had not initially planned to follow up, later reported some follow-up effort.

The difference between intention and actual achievement of the supervisors is highly significant statistically.⁴

Immediately following training, participants were asked: WHAT PLANS DO YOU HAVE FOR DISCUSSING THIS COURSE WITH YOUR SUPERVISOR? (Question Post- 4)

Twenty-five participants (out of the 37 in our follow-up sample) responded to this question, and all 25 indicated some plans for follow-up discussion (Levels 1 and 2 combined). Of these 25:

22 participants did carry through on the discussions, according to reports of their supervisors;

3 participants did not.

Evidently, participants were considerably more successful than supervisors in carrying out their intentions in regard to follow-up. One might wonder why this should be so.

⁴A two-tailed sign test was significant at the 0.4% level of confidence.

Question A.4: What is the evidence that the present approach promotes follow-up?

In the first report it was mentioned that one group of participants was not asked Question Post-4. Eight of these individuals are represented in the present data.

How do they compare with the 28 participants who were asked Question Post-4 in the matter of follow-up discussions with their supervisors?

23 of the 28 participants who were asked Question Post-4 engaged in a subsequent discussion;

1 of the 8 participants who were not asked Question Post-4 engaged in a subsequent discussion.

The difference is highly significant statistically.⁵

Evidently, merely asking a participant about his plans tends to promote discussion between himself and his supervisor.

Thus we find support for our hypothesis that the evaluation procedure developed in this project can lead to improvement in the overall training effort, if it is carried out consistently and on a continuing basis.

⁵The Fisher exact probability test yielded a one-tailed P of 0.26%.

B. APPLICATIONS OF THE TRAINING

Question B.1: Did the results come up to participants' post-training expectations?

Immediately following training the participants had been asked: GIVE EXAMPLES OF SITUATIONS IN YOUR OWN WORK IN WHICH THE CONCEPTS AND METHODS TAUGHT IN THIS COURSE WOULD BE APPLICABLE (Question Post-2a) The distribution of their responses at that time was:

Level 2	46%
Level 1	40%
Level 0	14%
Total	100%

Exhibit 3 shows the distributions of responses for the 29 participants who answered both Question Post-2a and Follow-up 1 (which asked about actual applications).

Exhibit 3

Distributions of Participants' Responses to Questions Post 2a and Follow up 1

		Follow-up 1 Level			Total
		0	1	2	
Post 2a Level	2	3	2	9	14
	1	1	4	5	10
	0	3	2		5
Total		7	8	14	29

The exhibit indicates that of 29 participants:

(along the diagonal)

16, including 3 who did not expect to get anything out of the course to begin with, found that their initial expectations were equalled;

(above the diagonal)

6 were unable to document useful applications to the extent that they had expected;

(below the diagonal)

7 found that their initial expectations were surpassed.

The difference between the two distributions is not significant.

Question B.2: How many participants found situations in which the training was inapplicable? What were the reasons given?

Participant Follow-up Question 2 asked:

- a. HAVE THERE BEEN ANY SITUATIONS IN WHICH YOU TRIED TO USE THESE CONCEPTS AND METHODS, BUT THEY DID NOT HELP YOU MUCH?
- b. IF YES, WHAT DO YOU CONSIDER TO HAVE BEEN THE REASONS? GIVE SPECIFIC EXAMPLES.

14 of the 37 participants, or 38% said: Yes. The reasons given for inability to apply the Kepner-Tregoe method varied.

6 said that their decisions are predetermined by Departmental policy, regulations, legislation, or the prior decisions of others. As one expressed it, the Kepner-Tregoe method "does not lend itself to government administrative work."

3 blamed their lack of success upon the fact that other staff members were not trained in the Kepner-Tregoe.

2 said that the objectives of the problems which they tried to solve were not clearly enough defined.

3 felt that they lacked sufficient information on the problem in question, although one of these pointed out that his failure was rather in himself than in the method.

Supervisors were not specifically asked about situations in which a participant tried without success to apply the Kepner-Tregoe method. However, the Supervisor Follow-up Question 3c did provide for cases in which the participant was reported not to have applied his training: IF NO, WHAT DO YOU CONSIDER TO BE THE REASONS HE HAS BEEN UNABLE TO MAKE USE OF THESE CONCEPTS AND METHODS?

Only four supervisors attempted an answer to this question. One of these agreed with the three participants who said that other personnel had not been trained in the Kepner-Tregoe approach. The other "explanations" were as follows:

"He still has trouble making decisions."

"He has been involved in completion of past work and preparation for transfer to a new headquarters."

"The problems he faces in (his research) are quite unique and difficult of solution by ordinary methods."

Question B.3: How many participants were able to use the training?

Both participants and supervisors were asked about actual applications of the training in the participants' daily work. The questions went as follows:

Participant Follow-up Question 1a: HAVE THERE BEEN ANY SITUATIONS IN WHICH THE KEPNER-TREGOE CONCEPTS AND METHODS WERE HELPFUL TO YOU IN YOUR WORK?

b. IF YES, GIVE SPECIFIC EXAMPLES.

Supervisor Follow-up Question 3a: HAVE THERE BEEN ANY SITUATIONS IN WHICH THESE CONCEPTS AND METHODS SEEM TO HAVE BEEN HELPFUL TO THIS EMPLOYEE IN HIS WORK?

b. IF YES, GIVE SPECIFIC EXAMPLES.

Participants and supervisors gave these responses:

	<u>Participants</u>	<u>Supervisors</u>
Level 2	43%	22%
Level 1	30%	22%
Level 0	27%	56%

A majority of the participants (Levels 1 and 2) perceived that the course had been helpful to them in their work. A majority of the supervisors (Level 0) did not perceive that the course had been helpful to their subordinates.

Participant Follow-up Question 3 referred to use of the Kepner-Tregoe training in a special situation: a. HAVE YOU MADE USE OF THESE CONCEPTS AND METHODS IN DISCUSSIONS WITH YOUR SUPERVISOR DURING THE PAST SIX MONTHS OR SO?

b. IF YES, GIVE EXAMPLES.

The percentages of participants responding to this question at each level were:

Level 2	30%
Level 1	10%
Level 0	60%

The fact that the majority of the participants did not make use, in discussions with their supervisors, of the concepts and methods they had learned (Level 0), offers a possible explanation of the disparity between the two groups in their perception of the helpfulness of the course. Obviously, it would be difficult for a supervisor to know if the concepts and methods were helpful, if he had no knowledge of or exposure to them. The next analysis pursues this point further.

Question B.4: How well aware of these applications are the supervisors?

Responses to the relevant questions were obtained from both the participant (Follow-up Question 1) and his supervisor (Follow-up Question 3) in 29 cases. Exhibit 4 shows the distributions of these responses.

Exhibit 4

Responses of Participants to Follow-up Question 1
and by Their Supervisors to Follow-up Question 3

		Participants Level			Total
		0	1	2	
Supervisors Level	2		3	3	6
	1	1	1	4	6
	0	7	3	7	17
Total		8	7	14	29

The exhibit indicates for 29 participant-supervisor pairs:

(along the diagonal)

11 pairs agreed

(above the diagonal)

4 instances in which supervisors cited more application than did the participants themselves.

(below the diagonal)

14 instances in which participants cited more application than did their supervisors, including 10 in which the supervisors could cite no applications

The differences between supervisor and participant responses are statistically significant.⁶

⁶ A two-tailed sign test was significant at the 1.5% level.

This and the preceding analysis present us with the question: "Do we have adequate communication concerning the benefits or lack of benefits of the training course?"

Possibly, communication deficiencies might be remedied by making provisions for supervisor and participant to review together the ways in which the training can be used at work.

The next analysis may throw more light upon this question.

Question B.5: What is the relationship between supervisor-participant communication and application of the training?

We can use the data in the next two analyses to develop an answer.

We compared the participants who did with those who did not discuss the training with their supervisors, with respect to the number in each group who found applications for the training during the eight to ten months following completion of the course. A total of 29 pairings of supervisors and participants were involved.

20 participants' supervisors said yes; discussions had taken place.

17 of these participants said that they had applied the training in their work (Levels 1 and 2);

3 of the participants said that they had not applied the training in their work (Level 0).

9 participants' supervisors said, no; discussions had not taken place.

4 of these participants said that they had applied the training in their work;

5 of these participants said that they had not applied the training in their work.

The difference between the two groups is statistically significant.⁷

We made a similar comparison of participants' responses to Follow-up Question 1 in relation to their supervisors' responses to both Follow-up Question 1 and Follow-up Question 2. Again, we have 29 cases.

12 participants' supervisors reported both discussions and specific follow-up efforts to determine what use these employees made of the training.

11 of these participants said that they had applied the training (Levels 1 and 2);

1 of these participants said that he had not applied the training (Level 0).

⁷The Fisher exact probability test yielded a one-tailed P of 4%.

17 participants' supervisors reported omitting one or both follow-up steps.

10 of these participants said that they had applied the training;

7 of these participants said that they had not applied the training.

The difference between groups in this case falls just short of statistical significance.⁸ Considered together, however, these last two analyses, and findings for Question A.4, suggest a trend that is both consistent and in line with managerial assumptions. Evidently supervisor-subordinate communication does make a difference.

One may well ask: "Are communication potentialities being sufficiently utilized in connection with training?" Would insistence upon more and better follow-up by supervisors yield a higher return on the training dollar?

The evidence accumulated so far does seem to offer considerable encouragement to the belief that regular application of procedures like those employed in this project could contribute substantially to that end.

⁸The Fisher test yields a one-tailed P of 6%

C. FEEDBACK

Question C.1: How effective is feedback to participants and supervisors?
What were the reactions to this feedback information?

Follow-up Question 4 for both supervisors and participants was designed to check on readership and reaction to the previous report. It ran as follows:

- a. HAVE YOU SEEN THE PERSONNEL RESEARCH STAFF REPORT, "A PATH TO MANAGEMENT DEVELOPMENT AND TO THE MEASUREMENT OF ITS GROWTH"?
- b. IF YES, DO YOU HAVE ANY COMMENTS ON THE FINDINGS?

The proportion of YES and NO responses were about the same for both groups.

Of 25 supervisors:

9 answered, YES;

16 answered, NO.

Of 37 participants:

14 answered, YES;

23 answered, NO.

Nine of the 14 participants who had seen the report offered comments. Three said that they found it interesting and informative. One expressed surprise at the "seemingly large number of participants who professed not to know why they were involved." Another concluded that it would be well to devote more time and thought to filling out questionnaires.

One participant remarked that the report "raises pertinent questions." This participant and two others enlarged upon this point with ideas that deserve to be quoted in full:

"The findings reveal a need for better communications between the supervisors and employee. The findings of this survey should be similar or applicable to other courses. Thus if the supervisor and employee are aware of the deficiencies, they should give more attention to them in future courses thereby improving the overall training effort."

"The findings point out the faults which have been quite obvious to me for some time, i.e., lack of communication between supervisor and employee, and determination of employee's real or actual training needs. Selection of employees to attend training courses (from my observation and experience) is usually done haphazardly without consideration of employee's needs related to course content plus consideration of employee's potential and career advancement."

"I believe that the report has made crystal clear that there is an urgent need for people responsible for training programs to redouble their efforts to make as sure as possible that the right man gets the right training at the right time. To me, this suggests career counseling for employees and supervisors by qualified personnel officers. If done on a planned basis, this could supplement and strengthen career development plans that may not be adequate without such counseling."

"I think the Department should be commended for its current efforts in the career development field--there is much to be done."

This last participant added another thought on a different line:

"One point that I would underline is the fact that 25 percent of the responses indicate that the participant took part in the decision that he attend the course. I think this is a symptom that bears on every one of the questions listed on pages IV and V. In my opinion, the initiative for training that is acquired on official time and at no expense to the employee should rest entirely with supervisors, training staff, and top management. There is plenty of room for employee initiative in 'extracurricular' work in the USDA Graduate School and elsewhere."

Of the 9 supervisors who had read the report, 4 offered comments. One remarked that the results did not surprise him. Another thought that it should stimulate better selection of trainees and more adequate follow up. A third supervisor felt that "as an experimental technique the study was too subjective and the questions were too susceptible to varying interpretations." Nevertheless, he did acknowledge that the study "pointed up some of the deficiencies in the existing practices in evaluating training." The fourth supervisor expressed surprise at the "relatively small change in the percentage of participants who were able to suggest specific applications in their regular jobs before and after training." He explained that he had taken the course himself and had found many opportunities to use it.

Question C.2: Does feedback promote follow-up?

It will be recalled that 25 supervisors reported on 36 participants in the follow-up.

The relationship between seeing the first report and discussion plus follow-up on one or more participants is revealed by the following data.

Of 9 supervisors who had seen the first report,

7 reported discussion of the training plus specific follow-up on one or more participants;

2 did not.

Of 16 supervisors who had not seen the first report, or could not recall whether or not they had seen it

4 reported discussion and follow-up;

12 did not.

Since the difference is highly significant statistically, the answer to our question is self-evident.⁹

⁹The Fisher test yielded an exact probability of 1.6%.

D. OTHER COMMENTS

Question D.1: What other reactions are expressed?

Follow-up Question 5 for both participants and supervisors called for Other Comments.

Such comments were volunteered by 12 participants and 9 supervisors. The comments of both groups covered a fairly wide range.

Several of the participants expressed appreciation of the value of the training, although, as one pointed out, it is not a "pink pill" nor a panacea. Another participant said that he had recommended the course to a colleague. It was also pointed out by both participants and supervisors that one may use parts of the Kepner-Tregoe approach in certain situations without using the entire system. Two participants remarked that the systematic analysis of problems tends to become a subconscious part of one's reasoning as time goes on.

One participant felt that a Kepner-Tregoe type of course which was geared to government problems would have been more beneficial. Another found it of little help in dealing with administrative personnel. Two more mentioned "unique" peculiarities of their own work which they believed made the training inapplicable.

Among the supervisors, two emphasized the difficulty of identifying specific benefits directly traceable to this training. One supervisor, however, said that the course had made his participants (he reported on several) more "objective and helpful" in staff meetings. One said that he was recommending another man for the training.

Some supervisors made unfavorable comments. According to one, "So far as this person is concerned, I think the money could have been better spent. We wished to strengthen his 'Decision Complex' and came up with '0'". Like some of the participants, one supervisor felt that the training was not applicable to the work of his agency. Another said that, after sending two employees to Kepner-Tregoe courses and three to a USDA Graduate School course in Federal Executive Development Training, he concluded that the latter was more beneficial.

Finally one supervisor doubted the value of the questionnaire.

V. DISCUSSION

One purpose of this research project was to develop and try out a prototype method for evaluating managerial training. The data presented in this and the preceding report seem to show that it is possible to obtain reasonably objective and practically meaningful evidence concerning the effectiveness of such training.

It should be noted that the evaluation procedure is concerned solely with the effectiveness of the training in producing observable changes in the job performance of the participants. Neither participants nor their supervisors were asked how they liked the course, what they thought of the instructor, how good the presentations were, and so on. Some, indeed, volunteered comments on such matters, but these comments were not primary to our purposes.

Our object was to find out what the participants actually did with the training after they had received it, how they used it in their work, and whether the amount and kinds of communication and follow-up that took place between participants and their supervisors made a difference in the participant's application of his newly acquired learning.

These are the questions one must ask if he wishes to find out whether the training is worth the cost. Certainly, it is legitimate to obtain information about other points as well, but such information does not get at the heart of the matter, namely, what did the training actually accomplish in the way of behavioral change? Specifically, what did the participant do after training that he was not doing before training? From these two reports it would appear that this kind of information can be obtained, if one is willing to take the trouble to get it.

The findings themselves raise a number of administrative questions. Judgments must be made as to whether these situations are acceptable:

Only 43% of the participants were able to specify in detail how they had applied the training in their work;

27% were unable to indicate that they had used the training at all;

In 33% of the cases there was no discussion of the training between participants and their supervisors during the eight to ten months following completion of the course;

In 44% of the cases no definite follow-up efforts were reported by the supervisors;

In 56% of the cases supervisors were unable to specify what, if any, use the participants had made of the training;

Feedback on the first phase of this project reached only 36% of the supervisors and 38% of the participants.

The questions raised by findings like these become more insistent in the light of other data presented in this report. Thus, the evidence indicates that:

Asking about follow-up plans increases the likelihood that follow-up will actually occur;

Feedback promotes follow-up;

Discussion and follow-up efforts by the supervisor increases the chances that the participant will find applications of the training in his work.

If then, the training situation seems unsatisfactory at present, there appear to be ways of improving it.

In the first report this project was characterized as being in part an action research program. This means that the research effort itself is calculated to bring about a change in the thing that is being investigated--in this case, improvement in the effectiveness of training. But to achieve any real improvement in this area it is essential not only that the research program be a continuing one, but also that the findings at each stage be communicated to all and pondered by all concerned.

This approach to evaluation now has been applied to a few other training programs. Two interagency programs, the Seminars in Executive Development (SED) and Seminars in Middle Management (SIMM) were mentioned in our first report. In addition, the Forest Service is using the technique in a long range effort to evaluate the full-time graduate training received by some of its personnel, and the Agricultural Marketing Service has employed it to appraise the effectiveness of its IMPACT program.

These initial developments are all to the good. But are the evaluations still being carried out in the Kepner-Tregoe courses to which the Department sends participants? Are they being continued systematically in the other programs just mentioned? Are the questionnaire returns being analyzed, and the findings communicated to all interested parties? Above all, what is being done toward applying the information to minimize wasted effort and to obtain better managerial training in the USDA?

VI. RECOMMENDATION

One supervisor doubted the value of the questionnaire used in this project. His point is well taken. If the procedure described in these two reports is used as a "one-shot" affair, then, indeed, it has little lasting value. To quote the concluding paragraph of our first report:

"To realize the potential benefits of evaluation, however, it is necessary that the procedure be carried out methodically and on a continuing basis. This means, among other things, insisting upon complete returns from both participants and their supervisors on all questionnaires. Unless this requirement is observed, the entire effort becomes pointless. If management itself treats the evaluation casually, others will do so too. The result can be an altogether unwarranted complacency regarding the effectiveness of the entire training and management development program."

It is recommended that the method described here, or appropriate variants of it, be applied if possible to all management development courses on a continuing basis.

A P P E N D I X A

Follow-up Questionnaires

TRAINING RESEARCH QUESTIONNAIRE

INSTRUCTIONS FOR SUPERVISORS

It has now been six months or more since your employee completed the Kepner-Tregoe course in "Management Problem Analysis and Decision Making," and again we would like to have your frank reactions on certain points. As explained in the questionnaires which were filled out earlier, we want to check on long-term effects of the training.

Please answer the questionnaire for each employee listed below. Please feel free to react favorably or unfavorably, or to agree or disagree with anyone else's point of view, or to change the points of view you may have expressed last time. What we want are your reactions, based upon your own experience and observations. In giving your answers, please be as specific as possible.

Two blank sheets are provided for your responses (do not hesitate to use additional sheets if you need them). Kindly number your answers to correspond with the questions.

Thank you once more for your time and trouble.

FOLLOW-UP QUESTIONS FOR SUPERVISORS

1. Has this employee discussed the Kepner-Tregoe concepts and methods with you during the past six months or so?
2.
 - a. Have you been able to follow up on his use of the Kepner-Tregoe training?
 - b. If yes, in what specific ways?
3.
 - a. Have there been any situations in which these concepts and methods seem to have been helpful to this employee in his work?
 - b. If yes, give specific examples.
 - c. If no, what do you consider to be the reasons he has been unable to make use of these concepts and methods?
4.
 - a. Have you seen the Personnel Research Staff report, "A Path to Management Development and to the Measurement of Its Growth"?
 - b. If yes, do you have any comments on the findings?
5. Other comments?

TRAINING RESEARCH QUESTIONNAIRE

INSTRUCTIONS FOR PARTICIPANTS

It has now been six months or more since you completed the Kepner-Tregoe course in "Management Problem Analysis and Decision Making," and again we would like to have your frank reactions on certain points. As explained in the questionnaires which you filled out earlier, we want to check on long-term effects of the training.

Please feel free to react favorably or unfavorably, or to agree or disagree with anyone else's point of view, or to change the points of view that you expressed last time. What we want are your reactions based upon your own personal experience. In answering these questions, please be as specific as possible.

Two blank sheets are provided for your responses (do not hesitate to use additional sheets if you need them). Kindly number your answers to correspond with the questions.

Thank you once more for your time and trouble.

FOLLOW-UP QUESTIONS FOR PARTICIPANTS

1. a. Have there been any situations in which the Kepner-Tregoe concepts and methods were helpful to you in your work?
b. If yes, give specific examples.
2. a. Have there been any situations in which you tried to use these concepts and methods, but they did not help you much?
b. If yes, what do you consider to have been the reasons? Give specific examples.
c. If you have not been able to apply the training at all, what do you consider to have been the reasons?
3. a. Have you made use of these concepts and methods in discussions with your supervisor during the past six months or so?
b. If yes, give examples.
4. a. Have you seen the Personnel Research Staff report, "A Path to Management Development and to the Measurement of Its Growth"?
b. If yes, do you have any comments on the findings?
5. Other comments?

A P P E N D I X B

The Scoring System

Supervisors

1. HAS THIS EMPLOYEE DISCUSSED THE KEPNER-TREGOE CONCEPTS AND METHODS WITH YOU DURING THE PAST SIX MONTHS OR SO?

Level 1 - "Yes"

Level 2 - "No" or no answer

2. a. HAVE YOU BEEN ABLE TO FOLLOW UP ON HIS USE OF THE KEPNER-TREGOE TRAINING?
- b. IF YES, IN WHAT SPECIFIC WAYS?

Level 2 - Response gives specific details or examples.

"By observing the greater efficiency and effectiveness with which he conducts conferences with equipment development center directors and staff. By observing the speedier resolution of issues relating to project selection and sequence."

"I have noted on certain occasions evidence of some of the things which he learned through this course. For example, his care and attention to fact-gathering and the use of a blackboard for problem analysis prior to the decision making process."

Level 1 - General statement, no specific details nor examples.

"I have kept no 'score sheet' on his use of this method in problem solving on a case-by-case basis. I do know from discussing particular problems with him and his reference to 'K-T' methods he is alert to his training received."

"Indirectly, in organizing for workloads."

Level 0 - "No"; "Not specifically."

Participants

2. a. HAVE THERE BEEN ANY SITUATIONS IN WHICH YOU TRIED TO USE THESE CONCEPTS AND METHODS, BUT THEY DID NOT HELP YOU MUCH?
- b. IF YES, WHAT DO YOU CONSIDER TO HAVE BEEN THE REASONS? GIVE SPECIFIC EXAMPLES.
- c. IF YOU HAVE NOT BEEN ABLE TO APPLY THE TRAINING AT ALL, WHAT DO YOU CONSIDER TO HAVE BEEN THE REASONS?

Level 1 - Response mentions one or more situations or types of problems.

Level 0 - Respondent can think of no such situation; indicates that the concepts and methods are applicable in all situations; or has not tried to apply them.

3. a. HAVE YOU MADE USE OF THESE CONCEPTS AND METHODS IN DISCUSSIONS WITH YOUR SUPERVISOR DURING THE PAST SIX MONTHS OR SO?
- b. IF YES, GIVE EXAMPLES.

Level 2 - Response gives specific details or examples.

"In discussions on difficulties concerning procurement of aircraft services from commercial sources."

"In discussions of how best to set up a nationwide conference to achieve desired results--problem included elements of politics, race relations, illiteracy, inter-agency relations."

Level 1 - General response, no specific details or examples.

"Only in a general way. For instance, in discussing a problem I may suggest that he is indicating the cause without specifying the problem."

"In the organization of reports, in expression of considered opinion."

Level 0 - No; only in a general way; not specifically.

Participants and Supervisors

- i. a. HAVE THERE BEEN ANY SITUATIONS IN WHICH THE KEPNER-TREGOE CONCEPTS AND METHODS WERE HELPFUL TO YOU IN YOUR WORK?
- b. IF YES, GIVE SPECIFIC EXAMPLES.
3. a. HAVE THERE BEEN ANY SITUATIONS IN WHICH THESE CONCEPTS AND METHODS SEEM TO HAVE BEEN HELPFUL TO THIS EMPLOYEE IN HIS WORK?
- b. IF YES, GIVE SPECIFIC EXAMPLES.
- c. IF NO, WHAT DO YOU CONSIDER TO BE THE REASONS HE HAS BEEN UNABLE TO MAKE USE OF THESE CONCEPTS AND METHODS?

Level 2 - Response mentions specific task(s) or problem(s).

"Yes. There was the task of allocating \$185,000 of Accelerated Public Works money. The problem was to use the money for highest priority jobs. The Kepner-Tregoe method worked well for this job."

"Together we made a thorough study of a potentially serious personnel situation, identified the problem, developed and considered several possible solutions, considered the consequences of each possible solution and selected the one which we feel will eliminate the problem without creating adverse consequences."

Level 1 - Response mentions general task or problem area, but gives no specific examples.

"Nearly every day there are circumstances where I am called on to make decisions or to advise my supervisors or State Office program specialists on programs. This course has helped me to analyze quickly the problems as presented, to evaluate alternative courses of action, and to select and recommend the most logical solution."

"A decision regarding allocation of new funds was made with more promptness and assurance than had been customary."

Level 0 - No situation or problem cited; no use of Kepner-Tregoe methodology; "Don't know" (Supervisors)

"I do feel that the Kepner-Tregoe course has been of some help to me in my work, although it is very hard to be specific in giving examples."

"Certainly in his day-to-day decision making."

Note: Only four supervisors answered 3c. Their replies are quoted in the text of the report.

4. a. HAVE YOU SEEN THE PERSONNEL RESEARCH STAFF REPORT, "A PATH TO MANAGEMENT DEVELOPMENT AND TO THE MEASUREMENT OF ITS GROWTH"?

b. IF YES, DO YOU HAVE ANY COMMENTS ON THE FINDINGS?

Level 1 1 - "Yes."

Level 0 0 - "No;" "Haven't read it;" "Don't remember."

5. OTHER COMMENTS?

Level 1 1 - If any comments are given.

Level 0 0 - If no comments are given.

A P P E N D I X C

Representativeness of Sample

Exhibit 5 shows the composition by agency of the original participants and those who returned follow-up questionnaires.

Exhibit 5

Distribution by Agency of Participants Who Returned Questionnaires

Agency	Original Group		Follow-up Group	
	No.	%	No.	%
FS	36	68.0	26	70.3
AMS	5	9.4	3	8.1
ASCS	5	9.4	4	10.8
ARS	4	7.5	2	5.4
FCS	1	1.9	1	2.7
NAL	1	1.9	1	2.7
SCS	1	1.9	0	0.0
Total	53	100.0	37	100.0

It is easy to see that the corresponding percentages agree quite closely. We may conclude therefore that, as far as agency representation is concerned, the two groups do not differ significantly.

Exhibit 6 shows the composition of the two groups with respect to GS level. Again the differences between corresponding percentages are too slight to approach statistical significance.

Exhibit 6

Distribution by GS Level of Participants Who Returned Questionnaires

GS Level	Original Group		Follow-up Group	
	No.	%	No.	%
15	1	1.9	0	0.0
14	27	51.0	19	51.3
13	16	30.2	10	27.0
12	9	16.9	8	21.7
Total	53	100.0	37	100.0

Although the two groups evidently do not differ significantly in composition, it is possible that other selective factors might have operated to determine who would and who would not return questionnaires. Is it the "superior" participant, the one who "learned more," who tends to return questionnaires like ours? Or, is there a biasing factor working in the opposite direction, so that the participants who profited least from the training are over-represented in the returns?

A partial answer to questions like these may be obtained by comparing the responses of "returnees" and "non-returnees" to a few items from the earlier questionnaires.

Prior to training, the participants were asked, "What do you think are the specific objectives of the course?" (Question Pre-1). Exhibit 7 shows the distribution by level of response of those participants who did and those who did not return follow-up questionnaires.

Exhibit 7

Actual (A) and Theoretically Proportional (P)
Distributions of Responses to Question Pre-1

Group	Level of Response				Total
	0-1		2		
	A	P	A	P	
"Returnees"	27	(27.2)	10	(9.8)	37
"Non-Returnees"	12	(11.8)	4	(4.2)	16
Total	39		14		53

Each cell in Exhibit 7 shows the actual number of "returnees" and "non-returnees," and (in parentheses) the number to be expected if the two groups were represented proportionately at each level. Obviously, the actual and "expected" counts are so nearly alike that a statistical test of significance is unnecessary.

Exhibit 8 shows in the same manner the distributions of responses to Question Pre-2: "How does this seem to fit into your career plans?"

Exhibit 8

Actual (A) and Theoretically Proportional (P)
Distributions of Responses to Question Pre-2

Group	Level of Response				Total
	0-1		2		
	A	P	A	P	
"Returnees"	18	(20.3)	19	(16.7)	37
"Non-Returnees"	11	(8.7)	5	(7.3)	16
Total	29		24		53

Although the differences between actual and "expected" frequencies are somewhat larger than in Exhibit 7, they nevertheless do not approach statistical significance.¹⁰

Question Pre-4 asked the participant whether he had discussed the objectives of the course, its relation to his career plans, and possible applications of the training with his supervisor. The response distributions of "returnees" and "non-returnees" are compared in Exhibit 9. Once more, the differences between actual and "expected" counts are negligible.

¹⁰Chi-square equals 1.101, significant between the 30% and 20% levels of confidence.

Exhibit 9

Actual (A) and Theoretically Proportional (P)
Distributions of Responses to Question Pre-4

Group	Level of Response				Total
	0-1		2		
	A	P	A	P	
"Returnees"	20	(19.6)	17	(17.4)	37
"Non-Returnees"	8	(8.4)	8	(7.6)	16
Total	28		25		53

Among the questions asked participants immediately following training was the following: "Give examples of situations in your own work in which the concepts and methods taught in this course would be applicable" (Question Post 2-a). Forty-two participants answered this question; of these, 30 returned follow-up questionnaires and 12 did not. As Exhibit 10 shows, no significant differences between actual and "expected" counts appeared.

Exhibit 10

Actual (A) and Theoretically Proportional (P)
Distributions of Responses to Question Post-2a

Group	Level of Response				Total
	0-1		2		
	A	P	A	P	
"Returnees"	16	(16.4)	14	(13.6)	30
"Non-Returnees"	7	(6.6)	5	(5.4)	12
Total	23		19		42

As a final check on comparability, responses of the two groups to Question Post-4 were examined. This question asked, "What plans do you have for discussing this course with your supervisor?" The results are shown in Exhibit 11. As in all the other cases, no significant differences appeared between the two distributions.

Exhibit 11

Actual (A) and Theoretically Proportional (P)
Distributions of Responses to Question Post-4

Group	Level of Response				Total
	0-1		2		
	A	P	A	P	
"Returnees"	11	(12.9)	19	(17.1)	30
"Non-Returnees"	7	(5.1)	5	(6.9)	12
Total	18		24		42

It seems then, that from the standpoint both of composition and of "quality"--the latter, as shown by their responses to the two earlier questionnaires--the follow-up group may be considered a representative sample of the original participants. This permits analysis and interpretation of follow-up responses as a meaningful part of the overall research data. In other words, the sample seems to be statistically adequate to satisfy the requirements of this research.

